

## REMARKS

By this amendment, claims 1 and 6 are revised to place this application into condition for allowance. Currently, claims 1-3 and 5-9 are before the Examiner for consideration on their merits.

In review, the TiN inclusion limitation of claims 1 and 6 is revised to clarify it and present a basis to distinguish over the prior art rejection. No new matter is introduced by the change to claims 1 and 6 since the added claim language is found on page 7, lines 9-18 of the original specification. The lower limit of the size of the inclusions of 10  $\mu\text{m}$  is found in Tables 2 and 3 of the specification.

While this amendment is made after a final rejection, Applicants submit that it clearly places the application in condition for allowance for the reasons set out below and does not require any further search or consideration on the part of the Examiner. The amendment in question clarifies the TiN inclusion limitation, which has already been discussed in the last response as a critical feature in distinguishing the invention from the applied prior art. Since the TiN size is already at issue, its modification does not necessitate action on the part of the Examiner that could not be done in connection with this response.

In light of the revisions to claims 1 and 6, Applicants request reconsideration of the rejection of all claims under 35 U.S.C. § 103(a) based on United States Patent No. 4,105,474 to Nakasugi et al. (Nakasugi).

In review, the Examiner has alleged that the composition of Nakasugi overlaps that which is claimed and the limitation regarding TiN inclusion is met so that a *prima facie* case of obviousness is established.

Applicants previously traversed this rejection arguing that the claimed range of TiN inclusions was not taught. In response to this argument, the Examiner maintained the rejection and continued to allege that the claimed TiN inclusion size was met by Nakasugi. While not expressly stated in the rejection, the Examiner was apparently interpreting the claim to mean that the TiN inclusions only had a maximum size and because of this, the much smaller sized inclusions of Nakasugi, i.e., 0.02  $\mu\text{m}$ , met the claim limitations found in independent claims 1 and 6.

In light of the revisions to claims 1 and 6, the issue of patentability now revolves around whether the TiN inclusions as now defined in claims 1 and 6 are present in Nakasugi.

Applicants' argument is that the added limitation of claims 1 and 6 is not taught or suggested in Nakasugi and this means that a *prima facie* case of obviousness has not been established. Claims 1 and 6 require that the measured inclusions range in size from 10 to 30  $\mu\text{m}$ . In the rejection, the Examiner cites Nakasugi as teaching a TiN inclusion size of not larger than 0.02  $\mu\text{m}$ . Clearly, the inclusions of Nakasugi are much, much smaller in size than those now defined in claims 1 and 6.

Since Nakasugi does not expressly suggest the claimed range, the Examiner has to either withdraw the rejection or find some reason that Nakasugi could be modified such that the TiN inclusions of the measured size would be present to meet the claim limitations. However, there is no legitimate reason for making an assertion that the claimed range is obvious based on the teachings of Nakasugi absent the reliance on hindsight to formulate the rejection.

As noted above, Nakasugi only discloses TiN inclusions not larger than 0.02 $\mu\text{m}$  in

size and does not say anything about TiN inclusions in size range of 10  $\mu\text{m}$  to 30  $\mu\text{m}$ . In addition, it should be noted that Nakasugi says nothing about trying to improve HIC resistance or the discovery relating to initiation of HIC as a result of TiN inclusions. The control of inclusions in Nakasugi relates to the prevention of the growth of the heated  $\gamma$  grains, see page 2, lines 37-40 of Nakasugi, and this has nothing to do with the invention.

Given the focus of Nakasugi, one of skill in the art would not have any reason to modify the size of the TiN inclusions to an extent that they would encompass the claimed range. Again, to do so would be a blatant use of hindsight and could not be sustained on appeal.

Even if the Examiner were to insist that the claimed range would be obvious based on Nakasugi, the evidence in the specification demonstrates that the claimed control is not arbitrary or some kind of an optimization of the teachings of Nakasugi.

According to the invention, it has been discovered that TiN is an initiation site for HIC and that HIC resistance can be improved by control of the TiN inclusions. This control is clearly demonstrated when considering Table 2. Inventive steels 1-14 show steels that abide by the invention of claims 1 and 6 in terms of composition and measured TiN inclusions that correspond to the claimed size range. These steels also show improved crack area ratio values, which is an indicator of improved HIC resistance. This evidence is further substantiation that the invention of claims 1 and 6 merits patentability and is not taught or suggested by Nakasugi.

Since claims 1 and 6 are patentable over the prior art, their respective dependent claims are also in condition for allowance.

Accordingly, the Examiner is requested to examine this application in light of this Amendment and pass all claims onto issuance.

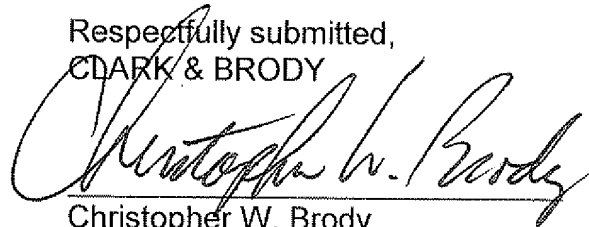
If the Examiner believes that an interview would be helpful in expediting the allowance of this application, the Examiner is requested to telephone the undersigned at 202-835-1753.

Again, reconsideration and allowance of this application is respectfully requested.

The above constitutes a complete response to all issues raised in the Office Action dated February 23, 2009.

Applicants submit that no fees are due in connection with this filing, but Deposit Account No. 50-1088 should be charged if any fee deficiency is noted.

Respectfully submitted,  
CLARK & BRODY

A handwritten signature in dark ink, appearing to read "Christopher W. Brody", is written over a horizontal line.

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